The Heat is On

Solar Technology Creates Potable Water

by Curt Cultice
ITA Office of Public Affairs

It was 1999, and the citizens of Quezon City, near Manila, the Philippines, were anxiously awaiting new equipment for the Tahanan Clinic, a drug and alcohol rehabilitation center.

The clinic was expecting the arrival of a solar water pasteurizer from Safe Water Systems, Inc., a small firm based in Honolulu. Once in place, the pasteurizer would use the warmth of the sun to heat water, thus purifying it and making it fit to drink.

Back in his Honolulu office, Will Hartzell, president of Safe Water Systems, remembers being very excited about the opportunity to help the clinic in Quezon City.

"The best part of this job is knowing that what we do really makes a difference," Hartzell says. "Eighty percent of all illnesses in the developing world result directly from waterborne pathogens. Helping improve the health and quality of life for millions of people around the world is tremendously satisfying."

The concept behind the Safe Water Systems technology is really very simple. The solar water pasteurizers use the sun's rays to heat the water to the point where all harmful bacteria and viruses are disinfected. It achieves the same result as boiling but at a lower temperature over a longer period of time. The solar units are designed to last about 25 years, don't need electricity, and they require virtually no maintenance, making them ideal for undeveloped rural locations and an efficient alternative to purifying water by boiling. Where firewood cannot be gathered, wood or other fuels must be purchased, with the cost often consuming up to 25 percent of a family's income. Millions of people cannot afford to buy fuel, have no way to disinfect their drinking water, and consequently suffer illnesses or die.

Placed at the water source of a local village or clinic, the water enters the solar water pasteurization system, where it is heated for two and one-half hours or so, and there you have it—drinkable water!

A LITTLE HELP FROM HIS FRIENDS

Hartzell still thinks about that sale to the Tahanan Clinic. Why? Well, let's just say he is thankful to have the resources of the U.S. Export Assistance Center in Honolulu.

"It turns out that once the shipment was made, I found that the clinic was not a registered importer," he says. "I couldn't get the product into the Philippines without paying exorbitant fees."

The Tahanan Clinic was in danger of not getting its water pasteurization system. The thought really bothered Hartzell. After all, the people using this clinic were really counting on delivery of his product, and he was counting on them to love his solar water pasteurizer.

"At first I was worried, but I took the issue to the Commercial Service trade specialists at the Honolulu U.S. Export Assistance Center, and they were able to untangle the paperwork and procedures, enabling our solar water pasteurizer to be shipped."

Hartzell had been dealing with the U.S. Export Assistance Center for a couple of years, and he was quite familiar with its

Photo courtesy of U.S. Commercial Service.

Hawaii Congressman Neil Abercrombie (left) presents Will Hartzell, president of Safe Water Systems, with the Export Achievement Certificate, as Robert "Mike" Murphy of the Honolulu Export Assistance Center looks on.

services. "Oh sure, the trade specialists have helped me out in a variety of situations," Hartzell says. "We've gotten assistance on everything from letters of credit and shipping terms to market information and country commercial guides for doing business around the world."

The hard work and assistance have paid off noticeably. For example, Safe Water Systems last year won the U.S. Commerce Department's Export Achievement Certificate. The award recognizes businesses that have exported to new markets with help from the department's Commercial Service trade specialists.

"Nigeria is a really good example of how we used information from the U.S. Export Assistance Center to navigate the market," Hartzell says. "We recently sold six of our solar water units—totaling $30,000—to priests at small clinics in that country."

Mike Murphy, director of the U.S. Export Assistance Center in Honolulu, says the deal was a real "win-win" for all involved and that the center helped the firm get documents on requirements for import into Nigeria.

"Water Systems is a good company that will work hard to make the export sale," Murphy says. "We enjoy building partnerships with local companies, and it gives us even more of an incentive to help when we're dealing with humanitarian issues."

A HEALTHY EDUCATION

Despite their success, Hartzell says that selling solar water pasteurizers to developing countries is not necessarily an easy or speedy proposition.

"There is quite a bit of health education going on in these rural areas, but many people in developing nations have no idea that unsanitary drinking water leads to sickness," he says. "Organizations like the United Nations, World Bank, and CARE are heavily involved in this educational effort."

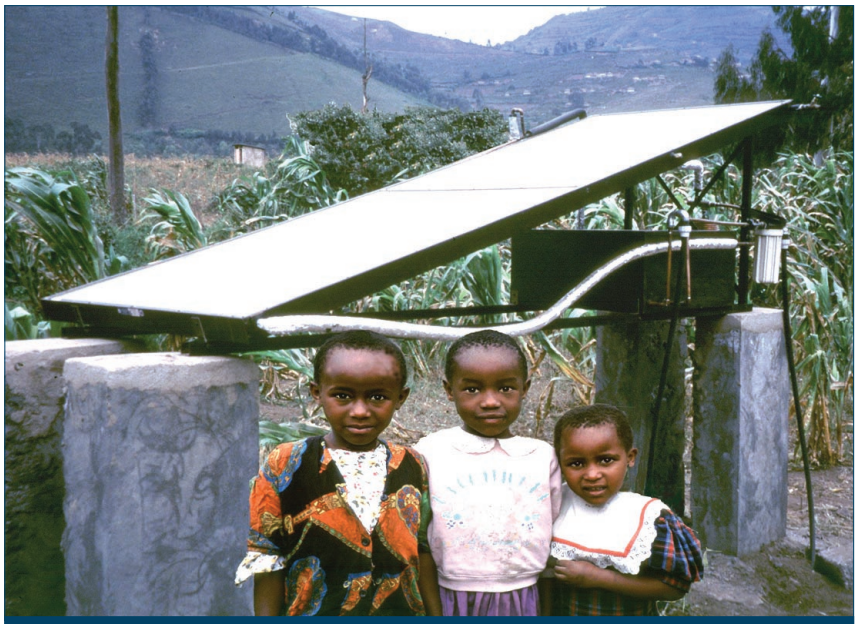

Photo courtesy of Safe Water Systems.

Three girls stand near the larger unit in Olkokola Village, near Arusha, Tanzania.

The statistics are alarming. Every year, 5 million people die as a result of contaminated drinking water—twice the number of people who die from AIDS. Contaminated drinking water is also the leading cause of death for children under five years of age, because their immune systems are not fully developed.

According to the World Health Organization, 1.2 billion people do not have access to drinking water free from disease-causing microbes. The World Health Organization predicts that by 2025, this number will increase to more than 2 billion.

Hartzell says his firm piggybacks on this worldwide educational effort by selling solar pasteurization units to governments agencies, non-profit and humanitarian service groups, charitable trusts, foundations, schools, and health clinics.

As such, the solar water pasteurization units have been proven to be both efficient and affordable. The firm's larger unit, measuring 40 square feet, costs $2,600, while the smaller 20-pound portable or family-sized unit is a mere $300. A village or institutional unit disinfects 250 gallons of water per day, and a family-sized unit will create up to 10 gallons safe to drink. The firm also makes a fuel-burning unit for use in areas with heavy foliage and little sun exposure.

With ever-increasing sales, Safe Water Systems continues to expand and now employs a dozen people.

"The biggest challenge of exporting is closing the deal," Hartzell says. "We've been very good at that, but there's a ton of potential opportunities out there."

Since 1996, the firm has exported 1,400 solar water pasteurizers to nearly 50 countries in Southeast Asia, Central America, and Africa.

Thanks to Safe Water Systems, millions of people around the world have a better way of life. And that includes the patients of Tahanan Clinic in Quezon City. ■